

EXHIBIT 2

FEDERAL ENERGY REGULATORY COMMISSION
Office of Energy Projects
Division of Dam Safety and Inspections - Chicago Regional Office
230 South Dearborn Street, Suite 3130
Chicago, Illinois 60604
(312) 596-4430 Office - (312) 596-4460 Facsimile

In reply refer to: P-10808

February 11, 2014

Mr. Lee Mueller
Boyce Hydro Power, LLC
4132 Rainbow Rd #247
Las Vegas, Nevada 89103

**Re: Temporary and Permanent Risk Reduction Measures
Edenville Hydroelectric Project (P-10808)**

Dear Mr. Mueller:

We have completed our review of the September 30, 2013, October 9, 2013, and November 29, 2013 submittals regarding various temporary and permanent risk reduction measures for your Edenville Hydroelectric Project (P-10808).

The September 2013 submittal included:

- 1) an analysis on pre-lowering the reservoir as a risk reduction measure,
- 2) a feasibility analysis of implementing an early warning system as part of your emergency action plan, and
- 3) a flood frequency analysis based on recorded annual peak discharges.

The October 2013 submittal included an updated flood frequency analysis.

The November 2013 submittal contained:

- 1) an updated HEC-RAS analysis of various dam breach profiles,
- 2) an update flood frequency analysis, and
- 3) proposals of short term and long-term risk reduction measures.

Currently the existing spillway capacity is not sufficient to pass the inflow design flood without overtopping the embankments. We have the following comments on your submittals:

1. **Interim Risk Reduction Measures** – You proposed to construct a 133-foot long overflow concrete spillway on the Tobacco River side in 2014 and a 150-foot long overflow concrete spillway on the Tittabawassee River side in 2015. The spillways would have a crest elevation 1-foot above the normal reservoir elevation and add a

total of 10,000 cfs of spillway capacity to the project. This plan and schedule is acceptable. Plans, specifications, and a quality control and inspection program to construct the fixed crest concrete spillways should continue to be developed. A revised detailed schedule for proposed submittals over the next two years should be developed and submitted to ensure that the construction projects and concrete non-destructive testing of the existing spillways are kept on track. The revised schedule should be submitted by March 4, 2014 and include time set aside for a preconstruction potential failure modes analysis (PFMA).

2. **Early Warning System** – The enhanced emergency action plan should identify what flood events would start to impact downstream structures and use that as the initiator to a Condition B rather than just the inflow design flood event. Procedures should be further developed in coordination with the Emergency Management Agencies (EMA's). The emergency action plan should be updated by April 1, 2014.
3. **Pre-lowering of the Reservoir** – Boyce Hydro should confirm if pre-lowering of the reservoir to accommodate extreme rainfall events is being considered. Mr. Frank Christie indicated during a phone conversation on January 13, 2014 that there are limited benefits to pre-lowering the reservoir as a risk reduction measure. Any plans to change flood operations should be coordinated with the EMA's, the National Weather Service, and other pertinent agencies prior to implementation.
4. **Flood Return Frequency** – The annual peak flows in the flood return frequency analysis were changed between the September 2013 submittal and November 2013 submittal. The changes in annual peaks should be explained in detail. The raw data collected should also be submitted for verification that the annual peak flows are calculated properly. The raw data should include the excel file or the calculations of the annual peak flows along with a photocopy of the actual operators entries that correspond to the annual peak flows.

5. **November 2013 HEC-RAS Model Update**

i) The November 2013 analysis models the M-30 crossing as a very efficient lateral structure allowing large flows between the reservoirs with very little head differential. The model previously accepted by the Board of Consultants indicates a larger head differential between the reservoirs is required to convey the flows. Additional detail should be provided regarding the M-30 bridge effects on the system. The bridge should be modeled independently with the results compared to the November 2013 HEC-RAS analysis to ensure that the gate option for a lateral structure is a proper way to model the M-30 crossing.

- ii) The November 2013 HEC-RAS model should be revised to include all bridge crossings in the Tittabawassee River system that could be impacted by a breach wave.
- iii) The November 2013 HEC-RAS model shows that the existing gated spillway capacity is over 44,000 cfs. The historical rating curves of the existing gated spillways should be verified in the revised HEC-RAS model to ensure that the existing spillway capacity is not overstated in the model. The revised HEC-RAS model should verify that the proper gate widths are being used in the model.
- iv) The hydraulic fill embankment soils should not be considered to be engineered fill. The dam breach parameters should be revised to reflect the poor soil parameters which would have a wider breach width, flatter side slopes, and a quicker time of failure.
- v) The main goal of the HEC-RAS analysis is to determine what downstream developments would be impacted by a dam breach for various stages of the proposed improvements. The downstream finished floor elevations should be obtained, and the HEC-RAS model extended into the City of Midland. The results of the various dam breach scenarios should be compared with the finished floor elevations of structures impacted by a breach wave of the Edenville dam. A domino-type failure analysis of the Edenville and Sanford dams should also be completed. The revised analysis should take into account the elevation at which the fuse plug at Sanford would be activated.

An expedited schedule for submitting a revised HEC-RAS analysis, the intention to pursue use of a pre-lowering of the reservoir, and the explanation of the change in peaks in the flood frequency analysis should be submitted by March 4, 2014.

6. Please provide comments from the BOC on these submittals. The BOC should be reconvened within 30 days after each interim spillway design package is submitted and again 30 days after the HEC-RAS analysis is submitted.

Please contact Mr. Peter Chapman, P.E. at (312) 596-4446 or me at (312)596-4430 if you have any questions pertaining to this letter.

Sincerely,


John A. Zygaj, P.E.
Regional Engineer

Cc: Mr. Frank Christie
6000 S. M-30 (P.O. Box 15)
Edenville, MI 48620

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